

2014

Clarifying the Northern Extent of Diamond Stingray (*Dasyatis dipterura*) in Southern California

Eric Miller

MBC Applied Environmental Sciences, emiller@mbcnet.net

Wayne Dossett

MBC Applied Environmental Sciences, wdossett@mbcnet.net

Jennifer L. Rankin

MBC Applied Environmental Sciences, jrankin@mbcnet.net

Follow this and additional works at: <http://scholar.oxy.edu/scas>

 Part of the [Marine Biology Commons](#)

Recommended Citation

Miller, Eric; Dossett, Wayne; and Rankin, Jennifer L. (2014) "Clarifying the Northern Extent of Diamond Stingray (*Dasyatis dipterura*) in Southern California," *Bulletin of the Southern California Academy of Sciences*: Vol. 113: Iss. 3.

Available at: <http://scholar.oxy.edu/scas/vol113/iss3/7>

This Research Note is brought to you for free and open access by OxyScholar. It has been accepted for inclusion in Bulletin of the Southern California Academy of Sciences by an authorized administrator of OxyScholar. For more information, please contact cdla@oxy.edu.

Clarifying the Northern Extent of the Diamond Stingray (*Dasyatis dipterura*) in Southern California

Eric F. Miller, Wayne H. Dossett, and Jennifer L. Rankin

MBC Applied Environmental Sciences, 3000 Red Hill Ave., Costa Mesa, CA 92626
emiller@mbcnet.net

Accurate records of biogeographic distributions (latitude and elevation) are becoming increasingly important as species shift their distribution in response to global climate change (Walther et al. 2002). The Southern California Bight is a transition zone between the Oregonian and San Diegan biogeographic zones (Horn et al. 2006). Therefore, range extensions are commonly documented in the area (Pondella 1997; Lea and Rosenblatt 2000; Miller and Curtis 2008; Moore et al. 2011; among others). On 27 October 2011, a single Diamond Stingray (*Dasyatis dipterura*) was taken in Marina del Rey harbor (33° 58.973'N 118° 27.245'W) in Marina del Rey, California during an environmental survey using a 7.6-m otter trawl at a depth of 4.3 m. The individual weighed 1.65 kg and measured 247 mm disc width (Figure 1). Key characters used in the identification to differentiate it from other common species, such as Round Stingray (*Urobatis halleri*) and Bat Ray (*Myliobatis californica*), include the disc shape and the presence of a keel on the tail. The tail keel is unique to Diamond Stingray in comparison to both Round Stingray and Bat Ray. Being alive and in apparently good health, the animal was photographed and released.

Diamond Stingray nomenclature has a multifaceted history. Originally described in a May 1880 publication by Jordan and Gilbert (1880) and again by Jordan and Gilbert (1882) as *Dasybatis dipterurus*, the current nomenclatural combination first appeared in Jordan and Evermann (1896). Garman (1880) described *Tygon brevis* in his October 1880 review of collections at the Harvard University Museum of Comparative Zoology. Garman (1913) synonymized all prior names, including *T. brevis*, under *Dasybatus brevis*, but lacked any reference to Jordan and Gilbert (1880). Instead, Garman (1913) included Jordan and Gilbert (1881), which introduced the name *Dasybatus dipterurus*. Nishida and Nakaya (1990) followed Garman (1913) and treated *Dasyatis dipterurus* (Jordan & Gilbert, 1880) with *Dasybatus brevis*. Eschmeyer (1998) noted *dipterurus* predated *brevis* (May and October 1880, respectively) and therefore synonymized *brevis* under *dipterurus* and recognized *dipterura* as the correct species name. Accordingly, Nelson et al. (2004) removed reference to *brevis* from North American waters in recognition of Eschmeyer's clarification of the species' nomenclature. We utilize the presently accepted *Dasyatis dipterura* (Page et al. 2013).

The Diamond Stingray northern range limit is no less enigmatic than its nomenclature. Current literature (Love et al. 2005) lists the northern range endpoint as central California (Grove and Lavenberg 1997 as *Dasyatis brevis*), although the true northern extent is unsubstantiated by a voucher specimen collected north of 33.7°N latitude, or Long Beach, California [LACM 48829.001; Fishnet2 (www.fishnet2.net); SIO (<http://collections.ucsd.edu>); MCZbase (<http://mcbzbase.mcz.harvard.edu>)]. Prior work recorded a range to southern California and “possibly British Columbia” (Hart 1973). The Hart reference was founded on records of a *Dasyatis* sp. being caught in Kyuquot on



Fig. 1. Two pictures taken of a live Diamond Stingray (*Dasyatis dipterura*) collected on 27 October 2011 using a 7.6-m otter trawl in Marina del Rey harbor, Marina del Rey, California. Top image shows the disc and the lower image displays the tail with both a spine and a keel.

Vancouver Island, British Columbia (Williamson 1930). Therefore, the true identity of the species occurring in British Columbia is uncertain and standing as the northern extent of *D. dipterura* is unconfirmed (Ebert 2003; Smith personal communication). Diamond Stingray was included in the 1993 list of fishes of British Columbia in deference to Hart, but noted a lack of voucher specimens. Its inclusion was for continuity only as a “hypothetical occurrence” (Gillespie 1993). The Resources Inventory Committee (2002)

also excluded Diamond Stingray from their checklist of British Columbia fishes due to the lack of a voucher specimen for the earlier references.

Polling southern California ichthyologists and field sampling personnel resulted in one confirmed record taken in Santa Monica Bay area or from points north of the bay. Diamond Stingray was reportedly taken along the Malibu coast (nominally 34° 1.0'N 118° 47.0'W) during surveys of surfzone fishes (C. Lowe, personal communication), or approximately 30 km upcoast of Marina del Rey. No size information or photographs were available for the Malibu collection. All other reported records were from south of Palos Verdes Peninsula (nominally 33° 44.0'N 118° 20.0'W), mostly along the beaches of Long Beach and San Diego where catches were historically more common. We conclude that the verifiable northern range limit of Diamond Stingray is Santa Monica Bay, California based on the Malibu and Marina del Rey collections reported here. The lack of verifiable collections north of Santa Monica Bay precludes extending this range any farther poleward.

Acknowledgements

We would like to thank those that responded to our local expert poll including: L. Allen, G. Cailliet, E. Jarvis, M. Love, C. Lowe, B. Power, and W. Smith. R. Lea assisted with additional curatorial information and provided comments that greatly enhanced the manuscript. Additional comments by D.S. Beck improved the manuscript. The Los Angeles County Department of Public Works supported the sampling and kindly allowed the use of the data.

Literature Cited

- Ebert, D.A. 2003. Sharks, rays, and chimaeras of California. University of California Press, Berkeley, CA.
- Eschmeyer, W.N. (editor). 1998. Catalog of fishes. Spec. Publ. No. 1, Center for Biodiversity Research and Information. California Academy of Sciences, San Francisco. 483 pp.
- Garman, S. 1880. New species of selachians in the museum collection. *Bull. Mus. Comp. Zool. Harvard Coll.*, 6:167–172.
- . 1913. The plagiostomia. *Mem. Mus. Comp. Zool. Harvard Coll.*, 36:1–515, plus 75 plates.
- Gillespie, G.E. 1993. An updated list of the fishes of British Columbia, and those of interest in adjacent waters, with numeric code designations. *Canadian Technical Report Fisheries and Aquatic Sciences.*, 1918:1–116.
- Grove, J.S. and R.J. Lavenberg. 1997. The fishes of the Galápagos Islands. Stanford University Press, Stanford, CA.
- Hart, J.L. 1973. Pacific fishes of Canada, vol 180. Fisheries Research Board of Canada, Ottawa.
- Horn, M., L. Allen, R. Lea, and D. Pondella. 2006. Biogeography. In: Allen, L.G., D. Pondella II, and M.H. Horn (eds.). The ecology of marine fishes: California and adjacent waters. University of California Press, Los Angeles, CA. Pp. 3–25.
- Jordan, D.S. and B.W. Evermann. 1896. The fishes of North and Middle America: a descriptive catalogue of the species of fish-like vertebrates found in the waters of North America, north of the Isthmus of Panama. G.P.O, Washington, D.C.
- and C.H. Gilbert. 1880. Notes on a collection of fishes from San Diego, California. *Proc. U.S. Nat. Mus.*, 3:23–34.
- and ———. 1881. Notes on the fishes of the Pacific Coast of the United States. *Proc. U.S. Nat. Mus.*, 4:29–70.
- Lea, R.N. and R.H. Rosenblatt. 2000. Observations on fishes associated with the 1997-98 El Niño off California. *Calif. Coop. Oceanic Fish. Invest. Rep.*, 41:117–129.
- Love, M.S., C.W. Mecklenburg, T.A. Mecklenburg, and L.K. Thorsteinson. 2005. Resource inventory of marine and estuarine fishes of the west coast and Alaska: a checklist of North Pacific and Arctic Ocean species from Baja California to the Alaska–Yukon Border. U. S. Department of the Interior, U. S. Geological Survey, Biological Resources Division, Seattle, Washington, 98104, OCS Study MMS 2005-030 and USGS/NBII 2005-001.

- Miller, E.F., and M.D. Curtis. 2008. First occurrence of a Pacific Crevalle Jack, *Caranx caninus*, north of San Diego, California. Bull. South. Calif. Acad. Sci., 107:41–43.
- Moore, R.H., E.F. Miller, and M. Love. 2011. Southern occurrence of the sand sole (*Psettichthys melanostictus*). Bull. South. Calif. Acad. Sci., 110:184–188.
- Nelson, J.S., E.J. Crossman, H. Espinosa-Pérez, L.T. Findley, C.R. Gilbert, R.N. Lea, and J.D. Williams. 2004. Common and scientific names of fishes from the United States, Canada, and Mexico. American Fisheries Society. Special Publication 29, Bethesda, Maryland. 192 pp.
- Nishida, K. and K. Nakaya. 1990. Taxonomy of the genus *Dasyatis* (Elasmobranchii, Dasyatidae) from the North Pacific. In: H.L. Pratt, Jr., S.H. Gruber, and T. Taniuchi (eds.). Elasmobranchs as living resources: advances in the biology, ecology, systematics, and the status of the fisheries. NOAA Tech. Rep. NMFS No. 90., Pp. 327–346.
- Page, L.M., H. Espinosa-Pérez, L.T. Findley, C.R. Gilbert, R.N. Lea, N.E. Mandrak, R.L. Mayden, and J.S. Nelson. 2013. Common and scientific names of fishes from the United States, Canada, and Mexico, 7th edition. American Fisheries Society, Special Publication 34, Bethesda, Maryland.
- Pondella, D. 1997. The first occurrence of the Panamic Sergeant Major, *Abudefduf troschelii* (Pomacentridae), in California. Calif. Fish Game, 83:84–86.
- Resources Inventory Committee. 2002. The vertebrates of British Columbia: scientific and english names. Standards for Components of British Columbia's Biodiversity No. 2. Version 3.0. Ministry of Sustainable Resource Management, The Province of British Columbia.
- Walther, G.R., E. Post, P. Convey, A. Menzel, C. Parmesan, T.J.C. Beebee, J.M. Fromentin, O. Hoegh-Guldberg, and F. Bairlein. 2002. Ecological responses to recent climate change. Nature, 416: 389–395.
- Williamson, H.C. 1930. Notes on the occurrence of various animals on the fishing grounds on the coast of British Columbia. Can. Field-Nat., 44:153–156.